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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,021

08/21/2006

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EL/2-23023/A/PCT

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EXAMINER

HIGGINS, GERARD T

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

05/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,021	<b>Applicant(s)</b> WOLLEB ET AL.	
	<b>Examiner</b> GERARD T. HIGGINS	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment received 02/20/2008 has been entered. Currently, claims 1-12 and 14 are pending and claim 13 is cancelled.

### ***Claim Objections***

2. Claims 1-3 are objected to because of the following informalities: the symbol for the phthalocyanine diradical does not appear in the claim at the appropriate place. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-12 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, the chemical formula (I) in claim 1 is drawn in such a way as to render the claims indefinite. The formula is not drawn in the accepted chemical way as to make clear all of the bonds to the metal center  $M_1$ ; specifically, it is unclear whether the dashed bonds connecting the metal center to the external ligands are merely optional bonds or they intend to reflect a

Art Unit: 1794

certain three-dimensional structure to the molecule. For purposes of examination, the Examiner will treat the bonds under both scenarios mentioned above.

With regard to claims 5 and 8, the term "substantially amorphous" in claims 5 and 8 is a relative term which renders the claim indefinite. The term "substantially amorphous" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. One of ordinary skill would not be able to recognize at what point a layer is to be considered "substantially amorphous."

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Berneth et al. (US 2002/0076648).

With regard to claims 1, 2, and 4, Berneth et al. teach an optical recording medium that comprises a substrate, a recording layer, and optionally a reflecting layer [0012]. The information layer may comprise a phthalocyanine compound of

Art Unit: 1794

the type seen at [0017] and [0021], a phthalocyanine containing a tetravalent axially disubstituted metal atom. The axially substituents comprise *inter alia* alkoxy, and aryloxy ligands [0024] with numerous radical substituents thereon, including the substituents of claim 4 [0055]. This anticipates the scenario outlined in section 4 above, wherein the dashed bonds in formula (I) are merely optional attachments. The metal center can comprise the metals seen at [0060], which includes transition metals of groups 4 to 7.

With regard to claims 3, 11, 12, and 14, the tetravalent metal can be Zr or Ti.

With regard to claims 5 and 8, this is an inherent property of the materials of formula (I) in claim 1. Since the Examiner has shown that the phthalocyanines of Berneth et al. anticipate the molecules of applicants; therefore, the molecules and the recording layer of Berneth et al. would inherently be substantially amorphous.

With regard to claim 6, the layer arrangement outlined at [0078] anticipates applicants' claimed arrangement.

With regard to claim 7, Berneth et al. teach at [0017] and [0020] that the phthalocyanines can comprised a metal-free chromophore (two H atoms instead of a metal); further, they teach at [0073] that the inventive phthalocyanines can be mixed with one another.

With regard to claim 9, Berneth et al. teach at [0070] that the recording layer may be put onto the substrate using spin-coating methods; further, they teach at [0082] that the substrate used was pregrooved.

Art Unit: 1794

With regard to claim 10, Berneth et al. teach at [0011] and [0069] that the phthalocyanines of their invention can be recorded or played back in the wavelength range of from 360 to 460 nm by using the Soret band of the phthalocyanines.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-5, 8, 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomachynski et al. (J. Porphyrins Phthalocyanines 2002, 6, 114-121) in view of McKeown et al. (5,792,860).

With regard to claims 1-3, 11, 12, and 14, Tomachynski et al. teach the metal substituted phthalocyanines of Figure 2.

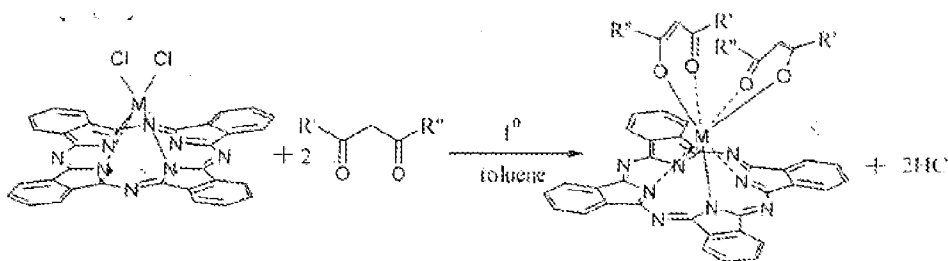


Fig. 2. Synthesis of the axially substituted metal phthalocyanine complexes with 1,3-diketone ligands

Art Unit: 1794

The  $\beta$ -diketones of Tomachynski et al. anticipate applicants' ligand system, wherein  $Q_1$  and  $Q_2$  are oxygen. Applicants' attention is drawn to examples 12a-13b, which comprise a transition metal of groups 4 to 7; specifically, Zr or Hf. Tomachynski et al. also disclose that these phthalocyanine compounds are of interest with respect to nonlinear optics, liquid crystals, electronics, and photosensitizers; however, they fail to disclose the phthalocyanines as useful for optical recording media or on a substrate.

McKeown et al. teach phthalocyanine sensitizers for a broad range of uses, including liquid crystal devices (col. 5, lines 42-54), non-linear optics (col. 5, lines 55-61), electronics (col. 7, lines 1-7), and coated on a transparent substrate in an optical recording media situation (col. 6, lines 9-31).

Since Tomachynski et al. and McKeown et al. are both drawn to phthalocyanines that have uses in a variety of equivalent systems; it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the inventive phthalocyanines of Tomachynski et al. into an optical recording media type arrangement as taught by McKeown et al. The potential uses of the phthalocyanines of McKeown et al. and Tomachynski et al. overlap to such an extent that it would have been obvious to extend the potential use of the molecules of Tomachynski et al. to include optical recording media. The motivation for doing so would be to provide molecules that have their absorbance profiles fine tuned to specific wavelengths based upon the symmetry of the relevant molecules.

Art Unit: 1794

With regard to claim 4, the examples 12a-13b in Table 1 of Tomachynski et al. show the branched substituents of applicants' claim 4.

With regard to claims 5 and 8, this is an intrinsic property of the materials of formula (I) in claim 1. Since the Examiner has shown that the phthalocyanines of Tomachynski et al. in view of McKeown et al. render obvious the molecules of applicants; therefore, the molecules and the recording layer of Tomachynski et al. in view of McKeown et al. would intrinsically be substantially amorphous.

9. Claims 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomachynski et al. (J. Porphyrins Phthalocyanines 2002, 6, 114-121) in view of McKeown et al. (5,792,860) as applied to claim 1 above, and further in view of Berneth et al. (US 2002/0076648).

Tomachynski et al. in view of McKeown et al. render obvious all of the limitations of applicants' claim 1 in section 8 above; however, they fail to disclose the layer arrangement of claim 6, the additional chromophore of claim 7, the manufacturing method of claim 9, and the recording/reading method of claim 10.

Berneth et al. teach that it is known to form optical recording media comprising phthalocyanines, including disubstituted tetravalent Zr phthalocyanines, in various layer arrangements, including those at [0078]. Berneth et al. teach at [0017] and [0020] that phthalocyanines for optical recording media can be comprised a metal-free chromophore (two H atoms instead of a metal); further, they teach at [0073] that it is known that phthalocyanines can be mixed with one another in a recording layer. Berneth et



Art Unit: 1794

al. teach at [0070] that the recording layer may be put onto the substrate using spin-coating methods; further, they teach at [0082] that the substrate used was pregrooved. Berneth et al. teach at [0011] and [0069] that it is known that phthalocyanines can be recorded or played back in the wavelength range of from 360 to 460 nm by using the Soret band of the phthalocyanines.

Since Tomachynski et al. in view of McKeown et al. and Berneth et al. are drawn to optical recording media comprised of phthalocyanines, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the layer arrangement, additional chromophore, manufacturing method, and reading/recording method of Berneth et al. with the phthalocyanines of Tomachynski et al. in view of McKeown et al. As can be seen from the absorbance spectra of Figure 6 in Tomachynski et al. the absorbance of an exemplary compound has a Soret band that tails out all the way to 390-400 nm, which therefore shows that these compounds could be used in a blue laser light recording setup, layer structure, spin-coating method of making, and with the additional chromophores of Berneth et al.

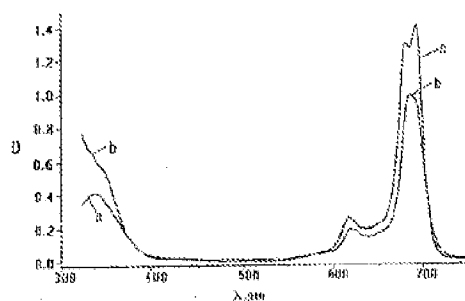


Fig. 6. UV-vis spectra of (a)  $\text{PcZr}(\text{CF}_3\text{COCH}_2\text{COCF}_3)_4$ , (b)  $\text{PcZr}(\text{CF}_3\text{COCH}_2\text{COCH}_3)_4$ .

Art Unit: 1794

One of ordinary skill would have been motivated to therefore use the compounds of Tomachynski et al. in view of McKeown et al. because they share the applicability with Soret band excitation; further, the relevant molecules have their absorbance profiles fine tuned to specific wavelengths based upon the symmetry of the relevant molecules.

### ***Response to Arguments***

10. Applicant's arguments, see Remarks, page 9 "Objections", filed 02/20/2008, with respect to objections to the claims have been fully considered and are persuasive. The objection of claim 13 has been withdrawn due to the cancellation of the claim; however, a new objection has been made due to the fact that the symbol for the phthalocyanine ring has been replaced by a square in claims 1-3.

11. Applicant's arguments, see Remarks, pages 9-12 "Rejections," filed 02/20/2008, with respect to the rejection(s) of claim(s) 1-14 under 35 U.S.C. 103(a) as being unpatentable over Yanagimachi et al. (5,696,758) in view of Wolleb et al. (US 2002/0099204) and claims 1-14 under 35 U.S.C. 103(a) as being unpatentable over Yanagimachi et al. (5,696,758) in view of Wolleb et al. (US 2002/0099204) further in view of any of the following Namba et al. (JP 60-071296), Namba et al. (JP 60-071295), or Namba et al. (JP 60-071294) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn.

Art Unit: 1794

However, upon further consideration, a new ground(s) of rejection have been made of claims 1-12 and 14 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, claims 1-12 and 14 under 35 U.S.C. 102(b) as being anticipated by Berneth et al. (US 2002/0076648), claims 1-5, 8, 11, 12, and 14 under 35 U.S.C. 103(a) as being unpatentable over Tomachynski et al. (J. Porphyrins Phthalocyanines 2002, 6, 114-121) in view of McKeown et al. (5,792,860), and claims 6, 7, 9, and 10 under 35 U.S.C. 103(a) as being unpatentable over Tomachynski et al. (J. Porphyrins Phthalocyanines 2002, 6, 114-121) in view of McKeown et al. (5,792,860) as applied to claim 1 above, and further in view of Berneth et al. (US 2002/0076648).

Applicants are attempting to argue on page 10, first paragraph that the structure of claim 1 shows an octacoordinated tetravalent phthalocyanine-type complex. These limitations are not found in claim 1, and furthermore the chemical structure of claim 1 is such that it renders the claim indefinite. The chemical structure is not drawn in a prototypical chemical fashion to accurately display the chemical bonds between the central metal atom and the external ligands; specifically, as stated in section 4, it is unclear whether the dashed bonds connecting the metal center to the external ligands are merely optional bonds or they intend to reflect a certain three-dimensional structure to the molecule. If applicants wish to claim a specific three-dimensional structure with a metal atom removed from the phthalocyanine ring, the molecule of formula (I) must accurately reflect as such.

Art Unit: 1794

Since claim 1 is indefinite, the Examiner has treated claim 1 under two scenarios. The rejection of claims 1-12 and 14 under 35 U.S.C. 102(b) as being anticipated by Berneth et al. (US 2002/0076648) reflects the scenario wherein the dashed bonds are optional; further, the rejections of claims 1-5, 8, 11, 12, and 14 under 35 U.S.C. 103(a) as being unpatentable over Tomachynski et al. (J. Porphyrins Phthalocyanines 2002, 6, 114-121) in view of McKeown et al. (5,792,860) and claims 6, 7, 9, and 10 under 35 U.S.C. 103(a) as being unpatentable over Tomachynski et al. (J. Porphyrins Phthalocyanines 2002, 6, 114-121) in view of McKeown et al. (5,792,860) as applied to claim 1 above, and further in view of Berneth et al. (US 2002/0076648) reflect the scenario wherein the molecule is as argued by applicants' in their Remarks.

With regard to applicants' Remarks, page 12 first paragraph, despite what Wolleb et al. states is their preferential recording and reproduction laser light, they still state laser wavelengths that render obvious applicants' wavelength range. Phthalocyanines have two absorption regions, the Soret band and the Q-bands, and as such the laser lights mentioned by Wolleb et al. reflect those two absorption regions.

Having said all of that, applicants' are correct in stating that the Examiner did not show disubstituted metal phthalocyanines that would anticipate or render obvious applicants' claim 1.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited but not used reference JP 2004-034645 A shows  $\beta$ -diketone ligands of the type claimed by applicants used in optical recording media; however, the molecules do not have a phthalocyanine type ring. The Lindsey et al. patents show sandwich metal phthalocyanine compounds, which may be used in optical recording media; however, they do not include  $\beta$ -diketone ligands.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-F 7:30am-5pm est. (1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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